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WITNESS my hand this
Thirteenth day of November 2003

JANENE PEISKER
TEAM LEADER EXAMINATION
SUPPORT AND SALES

P/00/009

Regulation 3.2

AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

Invention Title: **Deep Frying Appliance**

The invention is described in the following statement:

Our Ref: 021034

DEEP FRYING APPLIANCE

The present invention relates to equipment for the deep frying of food, and more particularly to electric deep frying appliances for domestic or small commercial use.

BACKGROUND

The deep frying of foods in oil such as for example fish and chips has long been practiced on a commercial basis. The equipment used is generally in the form of large volume stainless steel tanks, frequently gas fired. Commonly the heating source or sources are so arranged as to maximize the useful life of the large volumes of expensive cooking oil by minimizing the harmful carbonizing of the oil. Such carbonizing is caused by high concentrations of heat per unit area at the heating source.

It is usual also in such commercial systems to incorporated a cool area at the base of the tank which allows any carbonized particles which may form to collect in this cool area and thus be isolated from further heating. This is an important consideration in the design of deep frying equipment since some studies have linked carbonized heating oil to detrimental health effects.

In recent years the market has seen the development of a range of electric deep frying appliances, primarily intended for domestic use. They generally fall into two

categories: bowls with separate heating elements depending into the bowl and bowls with fixed external heating elements. Both categories suffer from a number of disadvantages.

In the interest of cleaning, the elements and electrical control unit of deep fryers in the first category, are generally removable as a unit. The heating elements of these units generally employ a tubular heating coil bent into some suitable pattern to distribute heat to the oil in which the element is immersed. Because the length of such tubular coils is limited by practical restrictions inherent in their manufacture, the resulting ratio of heat energy emitted per unit area to achieve a required deep frying temperature is very high; sufficiently high to induce carbonizing.

Another difficulty in this first category of deep frying appliances is the positioning of the thermostat thermocouple. It is necessary to control not only the cooking oil temperature prior to the addition of cold food, but also to quickly sense the temperature reduction as a result of the addition of such food. If the temperature controlling device does not sense a reduction in oil temperature quickly enough and re-energises the heating element, the food will absorb excessive amounts of oil. To

compensate for this lag in thermal response, many deep fryers have higher than desirable initial oil temperature settings, which results in the inevitable rapid degradation of the oil.

Additionally, because of the danger of igniting cooking oil, regulatory authorities subject deep fryers to rigorous testing. It is a requirement of sale, for example, that if a deep fryer is turned on with either no oil, or only a remaining oil residue after emptying, that no fire will be ignited. The thermocouple must react both to the oil when present, and the heating element when no oil is present.

A known solution has been to attach the thermocouples and their connection tubes to the coils but this renders them vulnerable and makes cleaning difficult.

In deep frying appliances of the second category, the heating element is often attached to the underside of the bowl. This inevitably leads to considerable inefficiency as only a proportion of the heat emitted by the element can be transferred to the oil inside the bowl. Again the configuration of the heating element is generally that of a single coil so that the heat induced per unit of surface area of the bowl is likely to be considerably higher than desirable. This second category of fryers has traditionally

used thermostats attached to the outside of the heating bowl. As a result, it is difficult for these to quickly sense a drop in internal oil temperature, and thus cooking performance suffers.

Additionally, carbonised materials gravitate to the hottest part of the container and degrade the oil rapidly

It is an object of the present invention to address or ameliorate at least some of the above disadvantages.

BRIEF DESCRIPTION OF INVENTION

Accordingly, in one broad form of the invention, there is provided an electric deep frying appliance adapted for the heating of cooking oil comprising a bowl and heating assembly; said heating assembly including a heat distributor wherein said heat distributor is in the form of an annular dished member; said heating assembly further including a communication pylon adapted to provide power and temperature control to said heat distributor.

Preferably said bowl is formed of a substantially vertical wall part and a dished base part.

Preferably said bowl is formed of stainless steel.

Preferably said bowl is formed of aluminium.

Preferably said bowl is supported in a suitable support structure.

Preferably said dished base part is provided with a central depression, said central depression adapted to the accumulation of oil contaminants.

Preferably said annular dished member extends substantially between the perimeter of said central depression and the internal surface of said wall part.

Preferably said heating assembly is removable from said bowl.

Preferably said annular dished member contains a heat emitting tubular element.

Preferably said annular dished member is formed of pressure die-cast aluminium, said die cast aluminium enveloping said tubular element.

Preferably said tubular element is in the form of a steel tube having an insulated heating coil spring along the axis of said tube; said coil spring connected to terminals at the outer ends of said spring.

Preferably said annular dished member is provided with an integrally die-cast raised pylon connector spigot.

Preferably said annular dished member is provided with integrally cast support members projecting from the underside of said dished member so as to raise said dished member above the surface of said dished base part of said bowl.

Preferably said terminals of said coil spring project upwardly in said connector spigot.

Preferably said communication pylon includes a vertical tubular member and a control module, said control module sealably connected to the upper end of said tubular member.

Preferably said raised pylon connector spigot is sealably connected to the lower end of said tubular member.

Preferably said tubular member is of a length sufficient to position said control module above the rim of said bowl when said annular dished member of said heat distributoris resting with said support members on said dished base part of said bowl.

Preferably said heating assembly includes a thermostat and power connection module, said module adapted to a sliding fit within said vertical tubular member.

Preferably said thermostat and power connection module includes an adjustable thermostat mechanism, said mechanism provided with a vertically projecting adjustment shaft.

Preferably said thermostat and power connection module includes spring clip connector means adapted to provide electrical connection with said terminals of said heating coil spring when said thermostat and power connection

module is fully inserted towards the lower end of said tubular member.

Preferably said control module is provided with a safety switch projecting from the lower surface of said module such that said switch is in a first "power on" position when said heating assembly is properly installed in said bowl.

Preferably said safety switch is in a second "power off" position when said heating assembly is removed from said bowl.

Preferably power cables extending the length of said tubular member are connected between said spring clip connector means and the poles of said safety switch.

Preferably said control module is provided with a main power switch adapted to provide mains power to said safety switch.

Preferably said control module is provided with a thermostat control knob, said control knob connected to said thermostat adjustment shaft by a connector rod.

Preferably said control module is provided with a power socket adapted to receive a power input plug.

Preferably the electrical characteristics of said heat emitting tubular element and the surface area of said

annular dished member are adapted to have a maximum heat flux density of less than 5 watts per centimeter squared.

Accordingly, in another broad form of the invention, there is provided a method for the construction of a deep frying appliance, said method including the steps of;

a) forming a tubular heating element, said element comprising an outer steel tube, a coil heating spring and an insulating material,

b) pressure die-casting an aluminium heat distributor, said heat distributor substantially enveloping said heating element,

c) connecting and sealing a vertical control pylon tube to a spigot projecting vertically from said heating plate,

d) connecting and sealing the base portion of a control module to the upper end of said vertical control pylon tube,

e) inserting and seating a thermostat module in the base of said vertical control pylon tube,

f) installing control module closure means to said base portion of said control module so as to form a sealed heating assembly, said heating assembly comprising said heat distributor, said vertical

control pylon, said thermostat module and said control module,

g) forming a bowl adapted to accept said heating assembly, said bowl and heating assembly adapted to the heating of cooking oil.

Preferably said tubular heating element is formed into a substantially closed loop, the ends of said element bent upwardly so that the ends of said element protrude from said spigot of said heat distributor.

Preferably said ends of said element are fitted with projecting terminal rods, said rods connecting to the ends of said coil heating spring.

Preferably said vertical control pylon tube is connected to said spigot by means of crimping the lower edge of said tube into an annular groove of said spigot.

Preferably sealing is provided between said vertical control pylon tube and said spigot by means of at least one "O" ring seals, said "O" ring seals located in annular grooves around the outer surface of said spigot.

Preferably said vertical control pylon tube is connected to said spigot by means of welding or brazing the lower edge of said tube to the outer surface of said spigot.

Preferably said thermostat module is fitted with projecting spring clip connectors adapted to connect with said terminal rods of said heating element when said thermostat module is installed in the base of said vertical control pylon tube.

Accordingly, in yet another broad form of the invention, there is provided an electric deep frying apparatus adapted for the heating of cooking oil comprising a bowl and a heat source; said heat source supplied by power cables conducted through a sealed communication pylon extending between said heat source and the bowl entry.

Preferably wherein said heat source comprises a heating element in heat conducting communication with a heat distributor.

Preferably said heat distributor is in the form of a dish having a central aperture.

Preferably said communication pylon defines an oil-free volume.

Preferably a temperature control device is located at the base of said communication pylon.

Preferably said temperature control device includes a bi-metallic strip; at least a portion of said strip being in thermal communication with said heat distributor.

Preferably said temperature control device is adjustable; an adjustment shaft passing from said temperature control device through said communication pylon to a control module.

Accordingly, in yet another broad form of the invention, there is provided an electric deep frying apparatus adapted for the heating of cooking oil comprising a bowl and a heat source; said heat source supplied by power conductor cables passing through a sealed vertical communication pylon extending between said heat source and the bowl entry.

Preferably said heat source is in the form of a heating coil, said coil suspended spaced away from the base of said bowl by said communication pylon.

Preferably said heating coil terminals issue from an end cap sealably connected to the base of said pylon.

Preferably said end cap is provided with a heat conducting bridge in thermal communication with a portion of said heating coil.

Preferably dual self resetting thermostat units are mounted in the base of said communication pylon; said thermostat units in thermal communication with said end cap and said heat conducting bridge.

Preferably a first of said thermostat units is adapted to prevent the supply of electrical power to said heating coil above a predetermined temperature of the cooking oil as thermally communicated to said casting; said predetermined temperature being associated with an optimum temperature for deep frying.

Preferably a second of said thermostat units is adapted to act as a safety power cut-off means, acting to prevent supply of electrical power to said heating coil at a temperature significantly higher than said predetermined temperature as thermally communicated through said heat conducting bridge.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

Figure 1 is a perspective view of an assembled deep frying appliance according to the invention.

Figure 2 is a perspective view of a heating assembly of the appliance of figure 1.

Figure 3 is a sectioned view of a lower portion of the deep frying appliance of figure 1.

Figure 4 is a plan view of a part of the heating assembly of figure 2.

Figure 5 is a plan view of a further embodiment of the invention.

Figure 6 is a sectioned view of the embodiment of figure 5.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

A first preferred embodiment of an electric deep frying appliance 10 according to the present invention will now be described with reference to figure 1. A bowl 11 having generally vertical walls 12 and a dished base part 13 is adapted to hold a quantity of cooking oil 14 and is mounted in a support structure (not shown). The support structure may be a simple stand or an enveloping shell of, for example, a suitable injection moulded polymer so as to provide both support and prevent contact with the outside of the bowl 11 when this is hot.

The bowl 11 may be formed of stainless steel or aluminium. The base 13 of bowl 11 is provided with a central depression 15. Optionally, the bowl may be provided with a lid (not shown) which may be loose or hinged to the bowl 11 or to an enveloping shell.

With reference to figures 2 and 3, a heating assembly 16 is comprised of a heat distributor 17 and a control pylon 18. Control pylon 18 is further comprised of pylon tube 19, control module 20 and thermostat module 21 (see

figure 3). In a preferred embodiment bowl 11 is provided with a protruding vertical channel 22 as shown in figure 1, adapted to at least partially accommodate control pylon 18 so as to minimize its intrusion into the cooking area of bowl 11.

Heat distributor 17 has an annular dished form extending between the periphery 23 of central depression 15 and vertical walls 12 as may best be seen in figure 3. Heat distributor 17 is provided with a circular or oval shaped pylon connector spigot 24 projecting upwardly at a point on its periphery. The plate 17 and spigot 24 form a single unit of, for example, pressure die-cast aluminium construction. Heat distributor 17 is cast around a tubular heating element 25 shown in dashed outline in figures 3 and 4.

Preferably the heat distributor 17 casting includes at least three projections from its underside in the form of supporting pillars 26 so as to position the heat distributor at some distance above the base 13 of the bowl 11. Plate 17 is provided with a central aperture 27 adapted to allow cooler oil and any contaminants such as food particles to sink to the central depression 15 of bowl 11. The dished shape of sides 28 of heat distributor 17 allows for a greater surface contact area as well as aiding in

the directing of particulate matter towards the aperture 27 and central depression 15.

With reference to figure 3, tubular heating element 25 is of conventional construction, comprising an outer steel tube 29 containing a heating coil spring 30 and an insulating material 31. As can best be seen in figure 4, tubular heating element 25 forms an almost closed loop within heat distributor 17 with the ends 32 of the element bending upwardly to emerge from the casting at raised pylon connector spigot 24. Again with reference to figure 3, terminal rods 33 connected to the two ends of the heating coil spring 30, project from the tubular heating element ends 32 to provide connections for power input to the heating coil spring 30.

The control pylon tube 19 is a metal tube having a circular or oval section adapted to mate with pylon connector spigot 24 of heat distributor 17. Sealing between control pylon tube 19 and pylon connector spigot 24 may be effected for example, by means of at least one "o" ring seal 34 together with a crimping of the edge 35 of the pylon tube 19 into a suitably formed recess as illustrated in figure 3. Alternatively, pylon tube 19 may be affixed to the connector spigot 24 by means of welding or brazing.

Control module 20 is fitted to the upper end of control pylon tube 19. The length of pylon tube 19 is such that control module 20 locates just above the rim 36 of bowl 11 when heating assembly 16 is placed in the bowl (refer figure 1). Control module 20 is comprised of an enclosure having a base portion 37 sealably attached to pylon tube 19 and a closure portion 38. When assembled to form heating assembly 16, control module 20, pylon tube 19 and heat distributor 17 form a sealed unit.

Control module 20 is provided with a temperature selector knob 40 a power switch 41 and a power safety switch 42. Power safety switch 42 projects from the bottom of base portion 37 of control module 20 so as to contact the rim 36 of bowl 11 or the bowl support structure. When heating assembly 16 is properly installed in bowl 11, safety switch 42 is caused to assume a "power on" position. When heating assembly 16 is removed from bowl 11 or not correctly positioned in it, safety switch 42 assumes its default position of "power off".

Prior to the assembly of closure portion 38 to base portion 37, thermostat module 21 is installed in the base of pylon tube 19. Thermostat module 21 is comprised of a housing 39 containing a thermostat mechanism (not shown) and spring clip power connector means 43 which project from

housing 39. Housing 39 is adapted to slide into pylon tube 19 and seat against control pylon connector spigot 24. When fixed in this position, power connector means 43 are engaged to the terminal rods 33 of heating coil spring 30.

Power connector means 43 are provided with power via the thermostat mechanism (not shown) located in housing 40. The thermostat mechanism is in turn connected by power conductor cables 44 to safety switch 42. Safety switch 42 is in turn connected by conductor means to power switch 41.

The thermostat mechanism is provided with adjustment shaft 45 projecting upwardly from housing 39 and is connected to temperature selector knob 40 by means of connector rod 46. Preferably, the thermostat mechanism comprises a bi-metallic strip at least a portion of which is in thermal communication with the pylon connector spigot.

The surface area of heat distributor 17 and the electrical characteristics of tubular heating element 25 are adapted to the size and oil volume of a given bowl to provide a heat source having a heat flux density of no greater than approximately 5 watts per square centimeter. It has been found that heat fluxes higher than this can cause carbonization of cooking oils with a concomitant reduction in oil life and adverse health indications.

This relatively low power level is sufficient to limit the maximum heat distributor temperature to a level relatively close to that of the optimum cooking temperature of the oil. In addition to avoiding carbonizing, the large surface area of the heat distributor when compared with prior art heat sources, decreases the degree of the sudden drop in oil temperature when cold food is introduced into the bowl. This is aided by the locating of the thermostat module in close proximity to the heat distributor. Thus the efficiency of the cooking process in both time and energy expenditure is improved.

In a second preferred embodiment, the heat distributor is a casting which has the loop of the tubular steel heating element attached to its underside, for example by brazing. The ends of the heating element then pass upwardly through the base of the pylon connector spigot to emerge in the base of the communication pylon for attachment to the thermostat control module as described above.

In yet a further preferred embodiment, the heat distributor is comprised of concentric and dished rings of flattened heating elements issuing from the communication pylon spigot. The thermostat module is in thermal contact with the spigot so as to maximize the sensitivity of the thermostat to changes in the oil temperature.

In yet a further preferred embodiment as shown in figures 5 and 6, the heat distributor 17 is in the form of a heating element tube 50 bent into a suitable heat distributing pattern 51 and issuing from an end cap 52 at the base of communication pylon 18. In this embodiment the end cap 52 at the base of the pylon 18 is formed either as a casting or a metal pressing sealably connected to the end of pylon tube 19.

A thermal bridge 53 is attached to the base of the pylon tube 19 and at a point 54 on the heating element tube 50 of the heat distributor, preferably at a point midway along the length of the tube 50. The bridge 53 serves to transfer heat to the end cap 52 at the base of the pylon in the event that the heating element has been switched on with no or insufficient oil in the bowl 11.

Dual self re-setting thermostat units 55 and 56 are located in the end cap 52 of the pylon tube 19 and arranged so as to be in thermal communication with the end cap. The first of these thermostat units is set to cut power to the heating element when the heat transfer from heated oil around the end cap reaches a predetermined temperature. The second thermostat unit responds to cut power at a significantly higher temperature, acting as a safety back-up to the first.

Clearly the embodiments described in detail above may be modified by those skilled in the art without departing from the concept and spirit of the invention. Thus for example a variety of bowl and heat distributor shapes may be employed without affecting the function and advantages of the invention.

CLAIMS

1. An electric deep frying appliance adapted for the heating of cooking oil comprising a bowl and heating assembly; said heating assembly including a heat distributor wherein said heat distributor is in the form of an annular dished member; said heating assembly further including a communication pylon adapted to provide power and temperature control to said heat distributor.

2. The appliance of claim 1 wherein said bowl is formed of a substantially vertical wall part and a dished base part.

3. The appliance of claim 2 wherein said bowl is formed of stainless steel.

4. The appliance of claim 2 wherein said bowl is formed of aluminium.

5. The appliance of any of claims 1 to 4 wherein said bowl is supported in a suitable support structure.

6. The appliance of any of claims 1 to 5 wherein said dished base part is provided with a central depression, said central depression adapted to the accumulation of oil contaminants.

7. The appliance of claim 6 wherein said annular dished member extends substantially between the perimeter

of said central depression and the internal surface of said wall part.

8. The appliance of claim 7 wherein said heating assembly is removable from said bowl.

9. The appliance of claim 8 wherein said annular dished member contains a heat emitting tubular element.

10. The appliance of claim 9 wherein said annular dished member is formed of pressure die-cast aluminium, said die cast aluminium enveloping said tubular element.

11. The appliance of claim 10 wherein said tubular element is in the form of a steel tube having an insulated heating coil spring along the axis of said tube; said coil spring connected to terminals at the outer ends of said spring.

12. The appliance of claim 11 wherein said annular dished member is provided with an integrally die-cast raised pylon connector spigot.

13. The appliance of claim 12 wherein said annular dished member is provided with integrally cast support members projecting from the underside of said dished member so as to raise said dished member above the surface of said dished base part of said bowl.

14. The appliance of claim 13 wherein said terminals of said coil spring project upwardly in said connector spigot.

15. The appliance of claim 14 wherein said communication pylon includes a vertical tubular member and a control module, said control module sealably connected to the upper end of said tubular member.

16. The appliance of claim 15 wherein said raised pylon connector spigot is sealably connected to the lower end of said tubular member.

17. The appliance of claim 16 wherein said tubular member is of a length sufficient to position said control module above the rim of said bowl when said annular dished member of said heat distributoris resting with said support members on said dished base part of said bowl.

18. The appliance of claim 17 wherein said heating assembly includes a thermostat and power connection module, said module adapted to a sliding fit within said vertical tubular member.

19. The appliance of claim 18 wherein said thermostat and power connection module includes an adjustable thermostat mechanism, said mechanism provided with a vertically projecting adjustment shaft.

20. The appliance of claim 19 wherein said thermostat and power connection module includes spring clip connector means adapted to provide electrical connection with said terminals of said heating coil spring when said thermostat and power connection module is fully inserted towards the lower end of said tubular member.

21. The appliance of claim 20 wherein said control module is provided with a safety switch projecting from the lower surface of said module such that said switch is in a first "power on" position when said heating assembly is properly installed in said bowl.

22. The appliance of claim 21 wherein said safety switch is in a second "power off" position when said heating assembly is removed from said bowl.

23. The appliance of claim 22 wherein power cables extending the length of said tubular member are connected between said spring clip connector means and the poles of said safety switch.

24. The appliance of claim 23 wherein said control module is provided with a main power switch adapted to provide mains power to said safety switch.

25. The appliance of claim 24 wherein said control module is provided with a thermostat control knob,

said control knob connected to said thermostat adjustment shaft by a connector rod.

26. The appliance of claim 25 wherein said control module is provided with a power socket adapted to receive a power input plug.

27. The appliance of claim 26 wherein the electrical characteristics of said heat emitting tubular element and the surface area of said annular dished member are adapted to have a maximum heat flux density of less than 5 watts per centimeter squared.

28. A method for the construction of a deep frying appliance, said method including the steps of;

(a) forming a tubular heating element, said element comprising an outer steel tube, a coil heating spring and an insulating material,

(b) pressure die-casting an aluminium heat distributor, said heat distributor substantially enveloping said heating element,

(c) connecting and sealing a vertical control pylon tube to a spigot projecting vertically from said heating plate,

(d) connecting and sealing the base portion of a control module to the upper end of said vertical control pylon tube,

(e) inserting and seating a thermostat module in the base of said vertical control pylon tube,

(f) installing control module closure means to said base portion of said control module so as to form a sealed heating assembly, said heating assembly comprising said heat distributor, said vertical control pylon, said thermostat module and said control module,

(g) forming a bowl adapted to accept said heating assembly, said bowl and heating assembly adapted to the heating of cooking oil.

29. The method of claim 28 wherein, said tubular heating element is formed into a substantially closed loop, the ends of said element bent upwardly so that the ends of said element protrude from said spigot of said heat distributor.

30. The method of claim 29 wherein said ends of said element are fitted with projecting terminal rods, said rods connecting to the ends of said coil heating spring.

31. The method of claim 29 wherein said vertical control pylon tube is connected to said spigot by means of crimping the lower edge of said tube into an annular groove of said spigot.

32. The method of claim 30 wherein sealing is provided between said vertical control pylon tube and said spigot by means of at least one "O" ring seals, said "O" ring seals located in annular grooves around the outer surface of said spigot.

33. The method of claim 31 wherein said vertical control pylon tube is connected to said spigot by means of welding or brazing the lower edge of said tube to the outer surface of said spigot.

34. The method of claim 32 wherein said thermostat module is fitted with projecting spring clip connectors adapted to connect with said terminal rods of said heating element when said thermostat module is installed in the base of said vertical control pylon tube.

35. An electric deep frying apparatus adapted for the heating of cooking oil comprising a bowl and a heat source; said heat source supplied by power cables conducted through a sealed communication pylon extending between said heat source and the bowl entry.

36. The deep frying apparatus of claim 35 wherein said heat source comprises a heating element in heat conducting communication with a heat distributor.

37. The deep frying apparatus of claim 36 wherein said heat distributor is in the form of a dish having a central aperture.

38. The deep frying apparatus of claim 37 wherein said communication pylon defines an oil-free volume.

39. The deep frying apparatus of claim 38 wherein a temperature control device is located at the base of said communication pylon.

40. The deep frying apparatus of claim 39 wherein said temperature control device includes a bi-metallic strip; at least a portion of said strip being in thermal communication with said heat distributor.

41. The deep frying apparatus of claim 40 wherein said temperature control device is adjustable; an adjustment shaft passing from said temperature control device through said communication pylon to a control module.

42. An electric deep frying apparatus adapted for the heating of cooking oil comprising a bowl and a heat source; said heat source supplied by power conductor cables passing through a sealed vertical communication pylon extending between said heat source and the bowl entry.

43. The deep frying apparatus of claim 42 wherein said heat source is in the form of a heating coil, said coil suspended spaced away from the base of said bowl by said communication pylon.

44. The deep frying apparatus of claim 43 wherein said heating coil terminals issue from an end cap sealably connected to the base of said pylon.

45. The deep frying apparatus of claim 44 wherein said end cap is provided with a heat conducting bridge in thermal communication with a portion of said heating coil.

46. The deep frying apparatus of claim 45 wherein dual self resetting thermostat units are mounted in the base of said communication pylon; said thermostat units in thermal communication with said end cap and said heat conducting bridge.

47. The deep frying apparatus of claim 46 wherein a first of said thermostat units is adapted to prevent the supply of electrical power to said heating coil above a predetermined temperature of the cooking oil as thermally communicated to said casting; said predetermined temperature being associated with an optimum temperature for deep frying.

48. The deep frying apparatus of claim 47 wherein a second of said thermostat units is adapted to act as a safety power cut-off means, acting to prevent supply of electrical power to said heating coil at a temperature significantly higher than said predetermined temperature as thermally communicated through said heat conducting bridge.

Dated 31 October 2002

Ian Geoffrey Wilson

By his Patent Attorneys

Wallington-Dummer

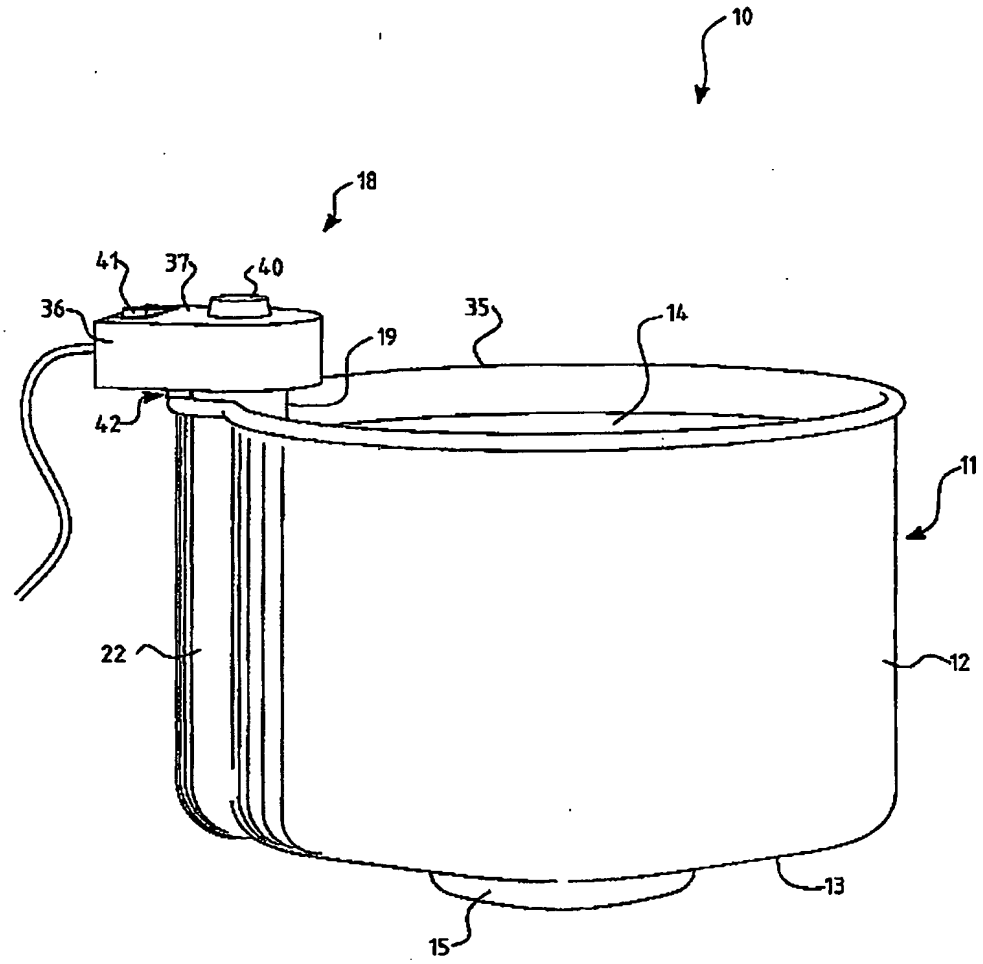

Fig. 1

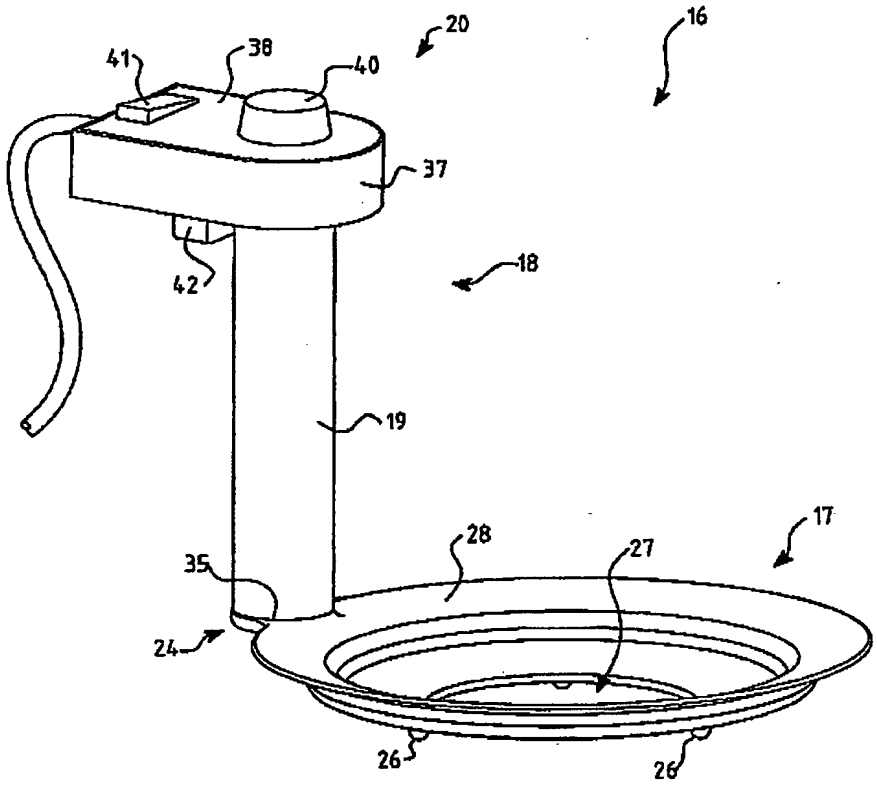

Fig. 2

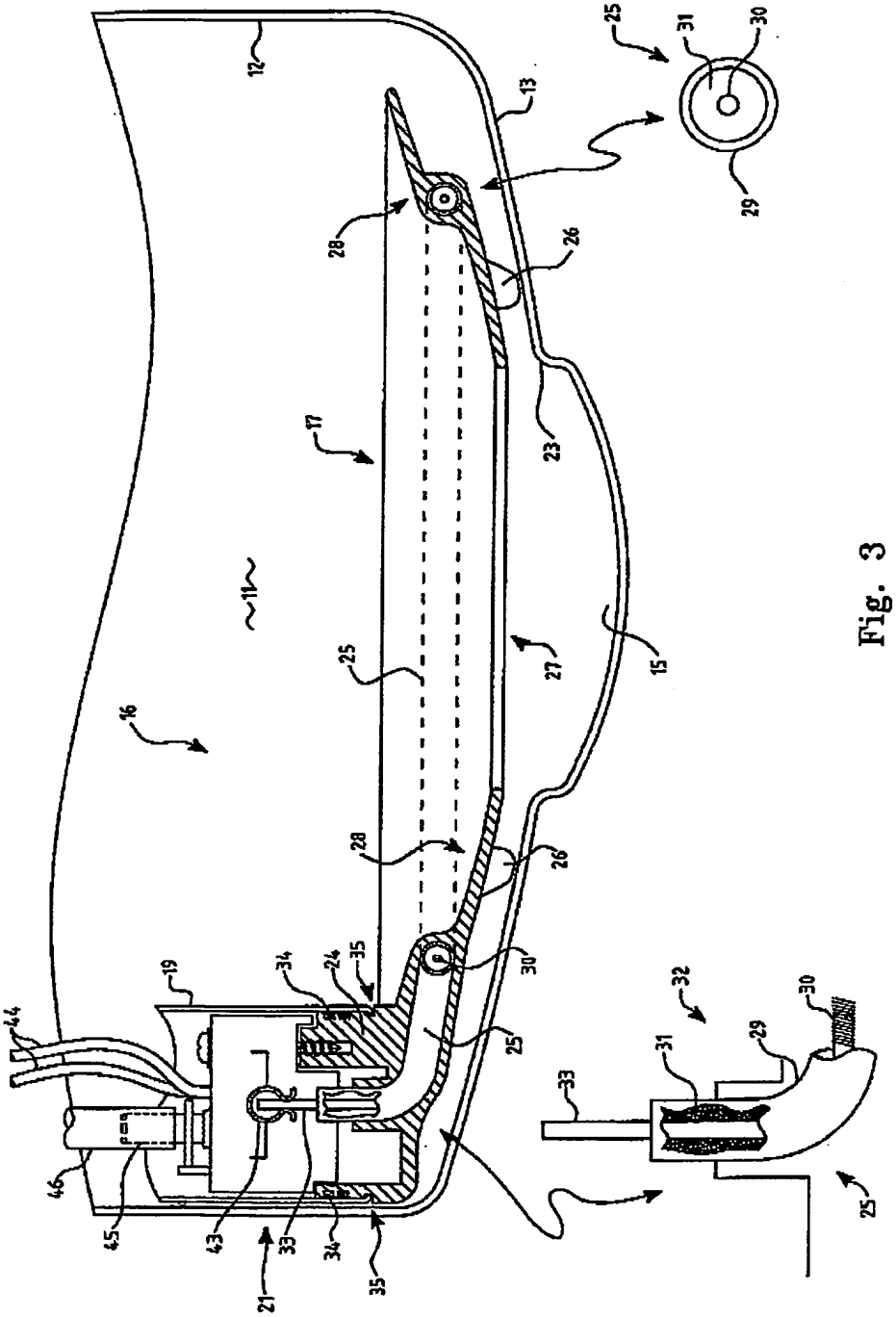
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Fig. 3

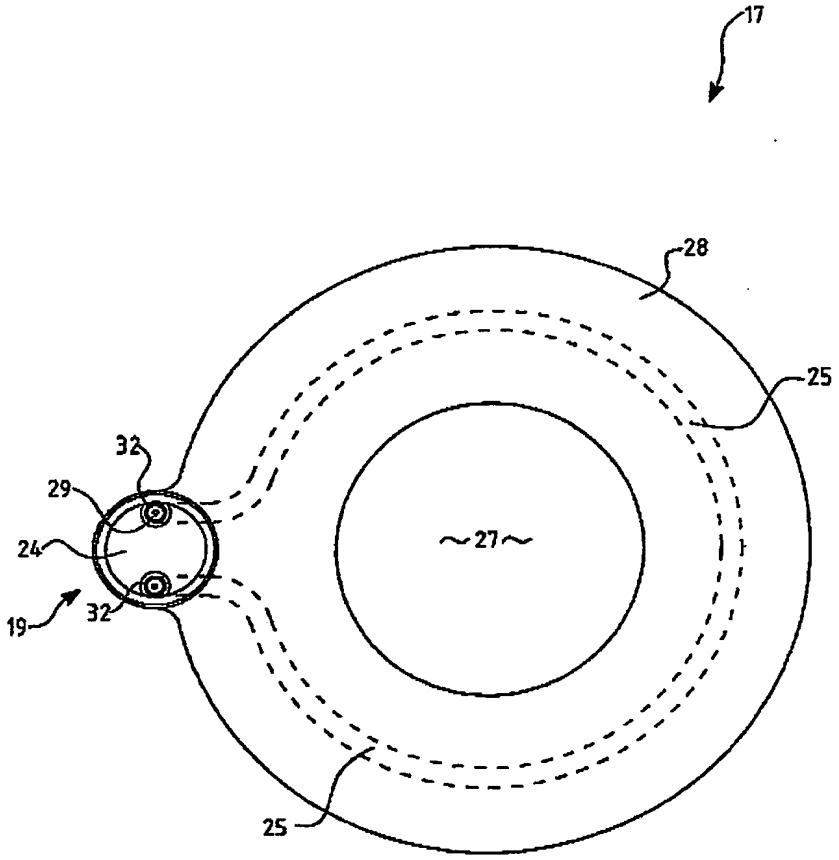

Fig. 4

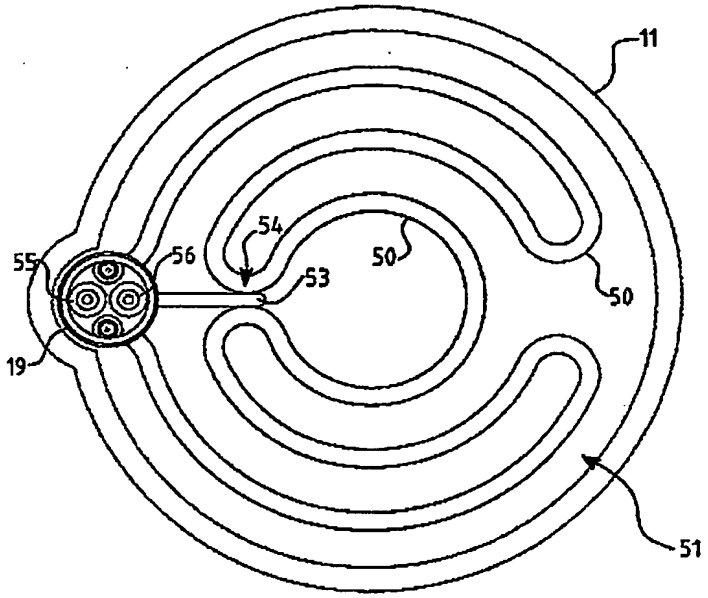

Fig. 5

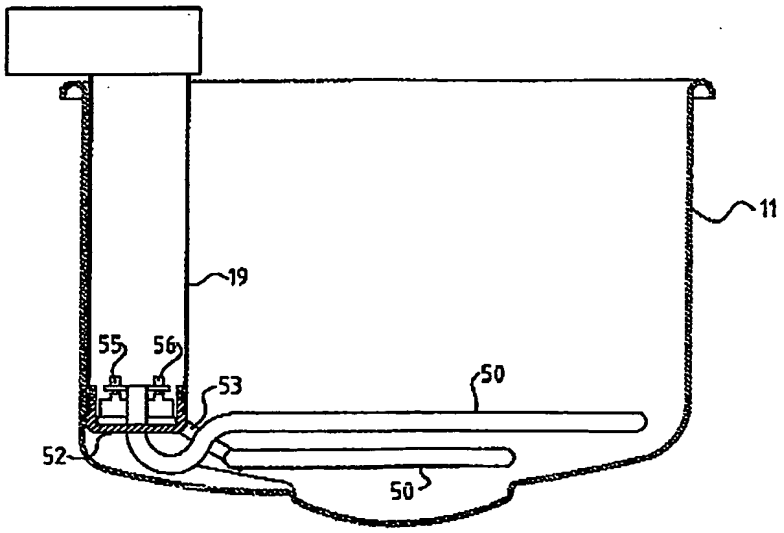

Fig. 6